Hakim, A. P., 2018. Bioremediasi Lumpur Minyak Dengan Penambahan Serbuk Gergaji Pada Reaktor *Biopile.* Skripsi ini di bawah bimbingan Dr. Ni'matuzahroh dan Nur Indradewi Octavitri, S.T. M.T. Program Stuudi S1 Teknik Lingkungan, Departemen Biologi, Fakultas Sains dan Teknologi, Universitas Airlangga.

ABSTRAK

Industri minyak bumi menghasilkan limbah lumpur minyak yang memiliki masalah lingkungan karena adanya kandungan logam berat dan *petroleum hydrocarbon.* Penelitian ini bertujuan untuk mengetahui nilai jumlah total bakteri (CFU/g) dan berat residu TPH dalam sampel awal lumpur minyak sebelum dilakukan bioremediasi, serta mengetahui perbedaan variasi kombinasi persentase serbuk gergaji dan waktu inkubasi terhadap jumlah total bakteri (CFU/g) dan berat residu TPH lumpur minyak (g/g). Teknik pengolahan lumpur minyak menggunakan reactor *biopile*. Metode pengukuran jumlah total bakteri menggunakan analisis *Total Plate Count (TPC)* dan berat residu TPH menggunakan analisis gravimetri, serta analisis statistik menggunakan aplikasi SPSS. Nilai jumlah total bakteri dalam sampel awal lumpur minyak sebesar 3,10 x 10^1 (CFU/g) dan nilai TPH sebesar 0,4085 (g/g). Kombinasi perlakuan tidak memberikan beda nyata untuk jumlah total bakteri dengan hasil terbaik sebesar 7,21 x 10^7 CFU/g, nilai TPH memberikan perbedaan nyata dengan hasil terbaik dengan nilai 0,012 g/g pada perlakuan penambahan serbuk gergaji 45% dan waktu inkubasi 56 hari. Nilai berat residu TPH belum memenuhi baku mutu menurut Kementerian Lingkungan Hidup No 128 Tahun 2003 sebesar 10.000 ug/g.

Kata kunci: *biopile,* bioremediasi, pengolahan lumpur minyak serbuk gergaji, TPH

Hakim, A. P., 2018.Bioremediation of Mud Oil by Adding Sawdust into Biopile Reactor. This script was supervised by Dr. Ni'matuzahroh and Nur Indradewi Octavitri, S.T., M.T. Bachelor Study Program of Enviromental Engineering, Departmen of Biology, Faculty of Science and Technology, Airlangga University.

ABSTRACT

The petroleum industry produces oil sludge waste which has environmental problems due to the heavy metal content and petroleum hydrocarbon. The purpose of this research is to determine the number of total bacterial (CFU/g) and weight of TPH residue in the initial sample of oil sludge before bioremediation was carried out, and to know the differences in variation in the combination of sawdust powder percentage and incubation time with parameter total bacterial count (CFU/g) and weight of TPH oil sludge residue (g/g). Oil sludge treatment techniques used a biopile reactor. Methods of measuring the total number of bacteria using analysis of Total Plate Count (TPC) and weight of TPH residues using gravimetric analysis, and statistical analysis using the SPSS application. The total value of bacteria in the initial sample of oil sludge was 3.10 x 10^1 (CFU/g) and the TPH value was 0,4085 (g/g). The treatment combination did not give a significant difference for the total number of bacteria with the best result of 7,21 x 10^7 (CFU/g), TPH values gave a real value of 0,012 (g/g) in the addition of sawdust 45% and an incubation time of 56 days. The weight value of TPH residue has met the quality standard according to the Ministry of Environment No 128, 2003 is 10.000 ug/g,therefore it is safe to be dispose in the environment

Keywords: biopile, bioremediation, oil sludge treatment, sawdust, TPH,